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David Rand Irvin

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COATS & BENNETT, PLLC

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RALEIGH, NC 27602

EXAMINER

STORM, DONALD L

ART UNIT

PAPER NUMBER

2654

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/734,289	Applicant(s) IRVIN ET AL.	
	Examiner Donald L. Storm	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on December 11, 2000 through July 1, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 20, 24-29, 37 and 41-52 is/are rejected.
- 7) ☒ Claim(s) 13-19, 21-23, 30-36 and 38-40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6 & 7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The Office file of this application does not contain the new set of drawings that the response filed April 2, 2001 (paper 3) says are being provided. A letter stating that new drawings are enclosed was received April 2, 2001. However, the only drawings in the Office file of this application were filed December 11, 2000. Figures 1-9, filed December 11, 2000, are the only drawings in the file; they are the figures of record.

Specification

2. The title is objected to because it is not sufficiently descriptive of the invention. A new title is required that is clearly indicative of the invention to which the claims are directed. See MPEP § 606.01. The Examiner suggests that the Applicant consider a title including these elements: "Method and Apparatus for Speech Recognition Incorporating Location Information to Modify Confidence." Note that all independent claims modify speech recognition confidence.

Claim Informalities

3. Claims 13-19, 21-23, 30-36, and 38-40 are objected to as being (directly or indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V. The claims would be allowable over the prior art of record if rewritten to include all of the limitations of the base claim and any intervening claims. The claims should also be rewritten to overcome any objections or rejections under 35 U.S.C. 112, especially as appearing in this Office action. Certain assumptions that make the limitations clear have been considered for the claims, as described next or elsewhere in this Office action.

4. Claim 20, and by dependency claims 21-23, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "the corresponding locations" needs clarification. Because no locations were previously recited as corresponding to anything, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to --locations--. Note that the correspondence is recited in claim 11.

5. Claim 25, and by dependency claims 26-41, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "the resulting greatest confidence measure" needs clarification. Because no resulting greatest confidence measure was previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to --a greatest resulting confidence measure--.

6. The Examiner notes, without objection, the possibility of informalities in the claims. The Applicant may wish to consider changes during normal review and revision of the disclosure.

a. In claim 12, the phrase "the location corresponding to each stored telephone number" allows the possibility of interpretation as a single location corresponding to many numbers. In fact, the interpretation would be the single location for all of the "each" telephone numbers.

With the antecedence provided by claim 11, it should be possible for artisans to interpret claim 12 as --the corresponding location for each stored telephone number-- or some similar phraseology. If --the corresponding location for each stored telephone number-- is as the

Applicant intends, it is in the best interest of the patent community for the Applicant to consider changing the phrase in claim 12 and changing the similar phrase in claim 29.

b. In claim 13, the phrase “the confidence measure associated with each stored pattern” allows the possibility of interpretation as a single measure corresponding to many patterns. In fact, the interpretation would be the single measure for all of the “each” patterns that meet the threshold criterion.

With the antecedence provided by claim 1, it should be possible for artisans to interpret claim 13 as --the associated confidence measure for each stored pattern-- or some similar phraseology. If --the associated confidence measure for each stored pattern-- is as the Applicant intends, it is in the best interest of the patent community for the Applicant to consider changing the phrase in claim 13 and changing the similar phrases in claims 14, 15 (two occurrences), 16, 18, 19 (two occurrences), 21, 22, 23 (two occurrences), 30, 31, 32 (two occurrences), 33, 35, 36, (two occurrences), 38, 39, and 40 (two occurrences).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Bielby

8. Claims 42, 46, 47, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Bielby [US Patent 5,644,680].

9. Regarding claim 42, Bielby [at column 6, lines 25-27] describes a communication device by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

location information [at column 9, lines 53-55, as NPA-NXX provides location];
circuitry for acquiring it [at column 7, lines 3-7, as processor receives calling number (includes NPA-NXX portion)];
confidence measures [at column 10, lines 20-24, as estimated log likelihoods];
a speech recognition circuit that provides them [at column 7, lines 20-26, as processor that applies speech recognition thereby computing measures of probability];
logic for modifying them based on the location information [at column 10, lines 24-28, as weighting the estimated log likelihoods by a priori measure that the corresponding locality name would be requested by a caller having the caller's NPA-NXX].

10. Regarding claim 46, Bielby also describes:

derive a portion of location information from area code, or from exchange code, or from country code [at column 9, lines 53-55, as NPA-NXX provides location].

11. Claims 47 and 51 set forth limitations similar to claims 42 and 46. Bielby describes the limitations as indicated there, where the circuitry, circuit, and logic are means for providing the functionality ascribed to the system.

Lennig

12. Claims 1-3, 9, 24, 42, 46, 47, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Lennig [US Patent 5,479,488].

As a preliminary matter, the Examiner posits that the equation appearing at Lennig's column 10, line 1, contains an uncorrected typographical error. The equation should read "weighted score = nas + K log {P(old)}", in line with the equation appearing a column 8, line 19.

13. Regarding claim 42, Lennig [at Fig. 2] describes a communication device by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology.

location information [at column 6, lines 23-24, as latitudes and longitudes & at column 8, lines 6-7, as destination locality d and phone number (NPA)NXX in originating locality o];

circuitry for acquiring it [at Fig. 2, item 14A, as VP and SR system and at column 6, lines 20-24, as VP unit locality lexicon comprises latitudes and longitudes & at Fig. 2, items 40, 33, 30, 31, 12, 27, 1, 14A, and column 5, lines 10-14, as ANI for transmitting the number of the calling terminal];

confidence measures [at column 8, lines 15-17, as acoustic likelihood logP for each locality & at column 10, line 3, as acoustic score nas];

a speech recognition circuit that provides them [at Fig. 2, item 14A, as speech recognition system and at column 8, lines 15-17, as acoustic likelihood logP (portion in total recognition score)];

logic for modifying them based on the location information [at Fig. 2, item 14A, as speech recognition system and column 8, lines 15-20, as summing logP with weighted logarithm of P(d)].

14. Regarding claim 46, Lennig also describes:

area code [at column 7, lines 58, as plan area NPA];

derive a portion of location information from it (or from others) [at column 8, lines 6-7, as (NPA)NXX in originating locality o].

15. Claims 47 and 51 set forth limitations similar to claims 42 and 46. Bielby describes the limitations as indicated there, where the circuitry, circuit, and logic are means for providing the functionality ascribed to the system.

16. Claim 1 sets forth a method with limitations comprising the functionality associated with using the system recited in claim 42. Lennig describes those functional limitations as indicated there. Lennig also describes additional limitations as follows:

receiving voice input [at Fig. 2, items 40, 14A, and column 2, lines 25-35, as directory assistance caller's utterance];

a set stored patterns [at column 9, line 65, as tokens in a set];

associating the confidence measure with each of them according to how closely each matches the voice input [at column 9, line 64-column 10, line 4, as acoustic score nas (portion in weighted score) for each token in the set applied to DA request re-scoring the tokens].

17. Regarding claim 2, Lennig also describes:

electronic address [at column 5, lines 1-14, as directory number, for example of the calling terminal, connected by switching network];

spoken label corresponding an electronic address [at column 7, lines 34-36, as business name having its directory number].

18. Regarding claim 3, Lennig also describes:

electronic address comprises telephone number [at Fig. 2, item 40 and at column 5, lines 1-14, as directory number, for example of the calling terminal].

19. Claim 9 sets forth limitations similar to claim 46. Lennig describes the limitations as indicated there.

20. Regarding claim 24, Lennig also describes:

user preferences [at column 8, lines 30-37, as the number of requests to and from each NXX given the calling (NPA)NXX];

for one location, the location information of preferences identifies at least one stored telephone number that is most likely to be called [at column 8, lines 37-56, as for the originating locality (NPA)NXX, the likelihood of a request that the originating locality is also the destination locality (NPA)NXX is higher].

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Lennig and Emery '242

22. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lennig [US Patent 5,479,488] in view of Emery et al. [US Patent 6,519,242 (Emery '242)].

23. Regarding claim 4, Lennig describes the included claim elements as indicated elsewhere in this Office action. Lennig determines the location of a calling number only by a location address registered for the PSTN number obtained by automatic number identification. Lennig does not consider other identifiers that might be associated with the location. In particular, Lennig does not explicitly describe an e-mail address.

Emery '242 [at columns 1-2] also describes the location of a calling number by its PSTN directory number; however, Emery '242 also describes several other locations identifiers for calling and called numbers. Emery '242 describes:

the electronic address is an e-mail address [at column 5, lines 3-11, as the location supplied is a electronic mail address].

Emery '242 [at columns 1-2] points out that using only a directory number as a location identifier ties the subscriber to a fixed, physical interface, and points out that addressing by e-mail address allows connection by subscriber who is actively roaming. Emery '242 suggests a variety

of service connections based the telephone number, the e-mail address, the URL, etc. Lennig uses determined location ID information for improving services offered by the connection. Emery '242 provides location information that is suitable for a mobile user of Lennig's system. Accordingly, it would have been obvious to one of ordinary skill in the art of providing roaming services at the time of invention to include Emery '242's concept of an e-mail address that provides location information because then Lennig's use of location to improve the probability of choosing the correct recognition result and improving their reliability could be available for subscribers who dial into a network while roaming away from their static network.

24. Regarding claim 5, Lennig describes the included claim elements as indicated elsewhere in this Office action. Lennig determines the location of a calling number only by a location address registered for the PSTN number obtained by automatic number identification. Lennig does not consider other identifiers that might be associated with the location. In particular, Lennig does not explicitly describe a URL.

Emery '242 [at columns 1-2] also describes the location of a calling number by its PSTN directory number; however, Emery '242 also describes several other locations identifiers for calling and called numbers. Emery '242 describes:

the electronic address is a Uniform Resource Locator [at column 5, lines 3-11, as the location supplied is a URL].

Emery '242 [at columns 1-2] points out that using only a directory number as a location identifier ties the subscriber to a fixed, physical interface, and points out that addressing by e-mail address allows connection by subscriber who is actively roaming. Emery '242 suggests a variety of service connections based the telephone number, the e-mail address, the URL, etc. Lennig uses

determined location ID information for improving services offered by the connection:

Emery '242 provides location information that is suitable for a mobile user of Lennig's system.

Accordingly, it would have been obvious to one of ordinary skill in the art of providing roaming services at the time of invention to include Emery '242's concept of a URL that provides location information because then Lennig's use of location to improve the probability of choosing the correct recognition result and improving their reliability could be available for subscribers who dial into a network while roaming away from their static network.

Lennig and Emery '057

25. Claims 43-45 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lennig [US Patent 5,479,488] in view of Emery et al. [US Patent 5,727,057 (Emery '057)].

26. Regarding claim 43, Lennig describes the included claim elements as indicated elsewhere in this Office action. Lennig, however, describes only locations corresponding to the plan area and exchange. In particular, Lennig does not explicitly describe location information from a GPS receiver.

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number, and Emery '057 [at column 5, lines 43-56] has location information that is linked to Telephone ID and telephone number.

Emery '057 further points out that mobile subscribers may have additional method of capturing Location ID. As one of those methods, Emery '057 describes:

location information of a Global Positioning Systems receiver [at column 4, lines 16-18, as the Location ID is available by use of a GPS receiver].

Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Emery '057 provides location information that is suitable for a mobile user of Lennig's system. Accordingly, it would have been obvious to one of ordinary skill in the art of mobile telephony at the time of invention to include Emery '057's concept of a GPS receiver that provides location information because then Lennig's use of location to improve the probability of choosing the correct recognition result and improving their reliability could be applied to mobile devices, such as Emery '057's device.

27. Regarding claim 44, Lennig describes the included claim elements as indicated elsewhere in this Office action. Lennig, however, describes only locations corresponding to the plan area and exchange. In particular, Lennig does not explicitly describe location information from terrestrial cellular positioning.

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number, and Emery '057 [at column 5, lines 43-56] has location information that is linked to Telephone ID and telephone number. Emery '057 further points out that mobile subscribers may have additional method of capturing Location ID. As one of those methods, Emery '057 describes:

terrestrial cellular [at column 4, lines 9-16, as cellular radio communication to towers and Base Station Systems];

location information of terrestrial cellular positioning [at column 7, lines 4-9, as Location ID calculated based on triangulation of base stations].

Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Emery '057 provides location information that is suitable for a mobile user of Lennig's system. Accordingly, it would have been obvious to one of ordinary skill in the art of mobile telephony at the time of invention to include Emery '057's concept of terrestrial cellular positioning that provides location information because then Lennig's use of location to improve the probability of choosing the correct recognition result and improving their reliability could be applied to mobile devices, such as Emery '057's device.

28. Regarding claim 45, Lennig describes the included claim elements as indicated elsewhere in this Office action. Lennig, however, describes only locations corresponding to the plan area and exchange. In particular, Lennig does not explicitly describe location information from base station codes.

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number, and Emery '057 [at column 5, lines 43-56] has location information that is linked to Telephone ID and telephone number. Emery '057 further points out that mobile subscribers may have additional method of capturing Location ID. As one of those methods, Emery '057 describes:

the identification code of one or more base stations [at column 6, line 53, as the Base Station cell site];

location information from examining it [at column 6, lines 49-55, as the device's Location ID found for the cell site's approximate location from the Base Station cell site].

Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Emery '057 provides location information that is suitable for a mobile user of Lennig's system. Accordingly, it would have been obvious to one of ordinary skill in the art of mobile telephony at the time of invention to include Emery '057's concept of base station codes that provide location information because then Lennig's use of location to improve the probability of choosing the correct recognition result and improving their reliability could be applied to mobile devices, such as Emery '057's device.

29. Claims 48 and 49 set forth additional limitations similar to claims 43 and 44. Lennig and Emery '057 describe and make obvious the additional limitations as indicated there. Lennig describes the included claim elements as indicated for the independent claim elsewhere in this Office action, where the circuitry, circuit, and logic are means for providing the functionality ascribed to the system.

30. Claim 50 sets forth additional limitations similar to claim 45. Lennig and Emery '057 describe and make obvious the additional limitations as indicated there. Lennig describes the included claim elements as indicated for the independent claim elsewhere in this Office action, where the circuitry, circuit, and logic are means for providing the functionality ascribed to the system.

Emery '057 also describes further additional limitations as follows:

the device is in communication with the base station [at column 6, lines 46-52, as the device transmission is received by the Base Station from a System receiving the transmission from the device].

Emery '057 and Lennig

31. Claims 1, 6-8, 10-12, 20, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emery et al. [US Patent 5,727,057 (Emery '057)] in view of Lennig [US Patent 5,479,488].

32. Regarding claim 52, Emery '057 [at Fig. 2] describes a mobile communication device recognizable as a whole to one versed in the art by explicitly describing the content and functionality of the recited limitations as the following terminology:

a microphone, a speech recognition circuit that receives input from it, an RF transceiver, an antenna electrically connected to it, a circuit for acquiring location information, an input device, a memory, a display, a microprocessor, a data bus through which they all communicate, program instructions stored in the memory and executable within the processor [at Fig. 2, items 201, Inputs, 204, 205, 206, 207, 209, 209.1, 213, 202, 211, 214, 203, 212, I/O, Telephone Bus, and their descriptions, especially at columns 3-4 and 8-9 of voice commanding of the system as implemented using a less powerful computing system than a personal computer, such as mobile cellular or other radio frequency communication devices that receive geographic location identifiers];

the acquired information is location information [at column 7, lines 35-37, as ANI, CLI, and Location ID of the caller];

the circuit is speech recognition [at column 15, line 35, as speech to text unit].

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number. Emery '057 indicates querying the user to deal with a list of recognition results; however, Emery '057 indicates that only a surface presentation of complicated speech recognition procedures would be presented. Emery '057 does not explicitly provide other ways to deal with a list of recognition results.

In particular, Emery '057 does not explicitly describe providing confidence measures from the speech recognizer or using the location information to modify the confidence measures of the recognition results.

Like Emery '057, Lennig also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number. In addition to a list of results, Lennig describes:

confidence measures [at column 8, lines 15-17, as acoustic likelihood logP for each locality & at column 10, line 3, as acoustic score nas];

a speech recognition circuit that provides them [at Fig. 2, item 14A, as speech recognition system and at column 8, lines 15-17, as acoustic likelihood logP (portion in total recognition score)];

modifying them based on the location information [at column 8, lines 15-20, as summing logP with weighted logarithm of P(d)].

Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Because Emery '057 provides the location information, it would have been obvious to one of ordinary skill in the art of speech recognition at the time of

invention to include Lennig's concept of providing recognition likelihoods and improving the likelihoods of the recognition results with Emery '057's system because that would improve the probability of choosing the correct recognition result and improving their reliability.

33. Regarding claim 1, Emery '057 [at column 15] describes a method of speech recognition recognizable as a whole to one versed in the art by explicitly describing the content and functionality of the recited limitations as the following terminology:

receiving voice input [at column 15, lines 28-33, as entering a spoken name in a call];
a set of stored patterns that match the voice input [at column 15, lines 52-58, as a list of matches to the name reference]; and

acquiring location information [at column 4, lines 15-20, as capturing location ID].

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number. Emery '057 indicates querying the user to deal with a list of recognition results; however, Emery '057 indicates that only a highlight presentation of complicated speech recognition procedures would be presented. Emery '057 does not explicitly provide other ways to deal with a list of recognition results.

In particular, Emery '057 does not explicitly describe providing confidence measures from the speech recognizer or using the location information to modify the confidence measures of the recognition results.

Like Emery '057, Lennig also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number. In addition to a list of results, Lennig describes:

confidence measures [at column 8, lines 15-17, as acoustic likelihood logP for each locality & at column 10, line 3, as acoustic score nas];

a speech recognition circuit that provides them [at Fig. 2, item 14A, as speech recognition system and at column 8, lines 15-17, as acoustic likelihood logP (portion in total recognition score)];

modifying them based on the location information [at column 8, lines 15-20, as summing logP with weighted logarithm of P(d)].

Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Because Emery '057 provides the location information, it would have been obvious to one of ordinary skill in the art of speech recognition at the time of invention to include Lennig's concept of providing recognition likelihoods and improving the likelihoods of the recognition results with Emery '057's system because that would improve the probability of choosing the correct recognition result and improving their reliability.

34. Regarding claim 6, Emery '057 also describes:

location information of a Global Positioning Systems receiver [at column 4, lines 16-18, as the Location ID is available by use of a GPS receiver].

35. Regarding claim 7, Emery '057 also describes:

terrestrial cellular [at column 4, lines 9-16, as cellular radio communication towers and Base Station Systems];

location information of terrestrial cellular positioning [at column 7, lines 4-9, as Location ID calculated based on triangulation of base stations].

36. Regarding claim 8, Emery '057 also describes:

the identification code of one or more base stations [at column 6, line 53, as the Base Station cell site];

location information from examining it [at column 6, lines 49-55, as the device's Location ID found at the cell site's approximate location from the Base Station cell site].

37. Regarding claim 10, Emery '057 also describes:

the location as the current location of a mobile communication device [at column 6, lines 29-42, as the updated Location ID as the phone moves].

Lennig also describes;

stored patterns [at column 9, line 65, as tokens in a set];

they correspond to a stored telephone number [at column 7, lines 21-36, as the match to the spoken business name having its directory number in a database list].

38. Regarding claim 11, Lennig also describes:

each stored number corresponds to a location [at column 5, lines 54-56, as each telephone number registered by the business is registered with the Location ID].

39. Regarding claim 12, Lennig also describes:

location information of the distance between the current location and the corresponding number [at column 6, lines 19-30, as distance between the caller and the lexicon's locality].

40. Regarding claim 20, Emery '057 also describes:

location information of a record of previous telephone calls made using the device and location from which the previous telephone calls were made [at column 13, lines 42-55, as records contain calls and Location ID of the cellular user who is the calling party].

Rahrer and Lennig and Emery '057

41. Claims 25-29, 37, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahrer et al. [International Publication WO 98/25393], already of record, in view of Lennig [US Patent 5,479,488] and Emery et al. [US Patent 5,727,057 (Emery '057)].

42. Regarding claim 25, Rahrer [at page 1] describes a voice dialing in a mobile embodiment recognizable as a whole to one versed in the art by explicitly describing the content and functionality of the recited limitations as the following terminology:

a spoken label corresponds to a desired telephone number [at page 18, line 25-page 19, line 7, as the user's utterance is stored and associated with the record of the number copied to the number field of the record];

receiving voice input comprising a spoken label corresponding to a desired telephone number [at page 25, lines 13-15, as user speaking a name that he wished to call calls the voice recognition algorithm];

associating a confidence measure with each of a set of stored patterns according to how closely the stored pattern matches the voice input [at page 20, lines 14-21, as assign confidence metrics respectively to records of characteristic fields in the personal directory representing a respective probability that a respective record is the desired record];

computing the difference between the greatest and next-to-greatest measures [at page 20, lines 26-34, as take the difference of the confidence metrics of the first and second best matches];

dialing the stored telephone number [at page 25, lines 14-17, as depositing the matching record into the register and resuming the dialing algorithm];

the number corresponds to the greatest confidence measure if the difference exceeds a predetermined threshold [at page 21, lines 11-15, as the record that is copied has the highest confidence metric if the difference is greater than the pre-defined value];

a greatest resulting confidence measure [at page 21, lines 19-27, as the greater frequency of use field of the first and second records];

the number corresponds to a greatest resulting confidence measure if the difference is less than the predetermined threshold [at page 21, lines 16-27, as copy to the register the record with the greatest frequency of use field if the difference is less than the pre-defined value].

Rahrer also describes:

acquiring location information [at page 1, lines 24-27, as location corresponding to the number and provided by the user]; and

modifying the confidence measures corresponding to one (or to more) of the stored telephone numbers [at page 32, lines 27-36, as weight the confidence metric associated with the possible record].

However, Rahrer does not explicitly describe basing the modification of the confidence measures on the location.

Lennig [at Fig. 2] also describes a communication device with voice dialing, and Lennig describes:

location information [at column 6, lines 23-24, as latitudes and longitudes & at column 8, lines 6-7, as destination locality d and phone number (NPA)NXX in originating locality o];

acquiring it [at Fig. 2, item 14A, as VP and SR system and at column 6, lines 20-24, as VP unit locality lexicon comprises latitudes and longitudes & at Fig. 2, items 40, 33, 30, 31, 12, 27, 1, 14A, and column 5, lines 10-14, as ANI for transmitting the number of the calling terminal];

confidence measures [at column 8, lines 15-17, as acoustic likelihood logP for each locality & at column 10, line 3, as acoustic score nas];

a speech recognition circuit that provides them [at Fig. 2, item 14A, as speech recognition system and at column 8, lines 15-17, as acoustic likelihood logP (portion in total recognition score)];

logic for modifying them based on the location information [at Fig. 2, item 14A, as speech recognition system and column 8, lines 15-20, as summing logP with weighted logarithm of P(d)].

Both Rahrer and Lennig provide speech recognition results and probabilities, and both Rahrer and Lennig modify the recognition probabilities based on other parameters to provide more reliable selection of a telephone number to be called. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Rahrer's list of recognized results. It would have been obvious to one of ordinary skill in the art of speech recognition at the time of invention to include Lennig's concept of improving the likelihoods of the recognition results based on location because that would provide

another way to enhance selection of Rahrer's recognized result and improve the reliability of dialing the correct number.

However, neither Rahrer nor Lennig explicitly describes the location as the current location of a mobile device.

Emery '057 [at column 15, lines 24-61] also has directory lookup based on speech recognition of an utterance that corresponds to a telephone number, and Emery '057 [at column 5, lines 43-56] has location information that is linked to Telephone ID and telephone number.

Emery '057 further points out that mobile subscribers may have additional method of capturing Location ID. Emery '057 describes:

current location information of a mobile device [at abstract, as positioning data of a telephone from continual GPS transmissions].

Both Rahrer and Emery '057 use voice dialing in a mobile telephone. Both Emery '057 [at column 1, lines 60-64] and Lennig suggest a variety of service capabilities based the telephone number or location ID. Lennig applies the location information to improving the reliability of choosing the correct recognition result of a list of results such as Emery '057's list of recognized results. Emery '057 provides current location information that is suitable for a mobile user of Lennig's and Rahrer's systems. Accordingly, it would have been obvious to one of ordinary skill in the art of mobile telephony at the time of invention to include Emery '057's concept of providing continually position information to Rahrer's mobile device because then Lennig's use of location to improve the probability of choosing the correct recognition result and improvising their reliability could be applied to mobile devices, such as Rahrer's and Emery '057's mobile devices.

43. Claim 26 sets forth additional limitations similar to limitations set forth in claim 6. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

44. Claim 27 sets forth additional limitations similar to limitations set forth in claim 7. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

45. Claim 28 sets forth additional limitations similar to limitations set forth in claim 8. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

46. Claim 29 sets forth additional limitations similar to limitations set forth in claim 11 and in claim 12. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

47. Claim 37 sets forth additional limitations similar to limitations set forth in claim 20. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

48. Claim 41 sets forth additional limitations similar to limitations set forth in claim 24. Rahrer, Lennig, and Emery '057, describe and make obvious the additional limitations as indicated there.

Conclusion

49. The following references here made of record are considered pertinent to applicant's disclosure:

Dahan [US Patent 6,018,708] computes the difference between first- and second-most likely results of speech recognition after modifying the recognition likelihood for certain combinations and decides against a threshold whether to continue or abort the recognition.

Will [US Patent 6,167,117] produces a list of speech recognition results and dials a telephone number if the most likely result exceeds a threshold, but confirms it to the user if below.

Rahrer et al. [US Patent 6,208,713] describes the same as WO 98/25393.

50. Any response to this action should be mailed to:

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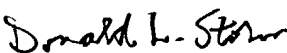
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51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703) 305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645.

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September 14, 2004


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